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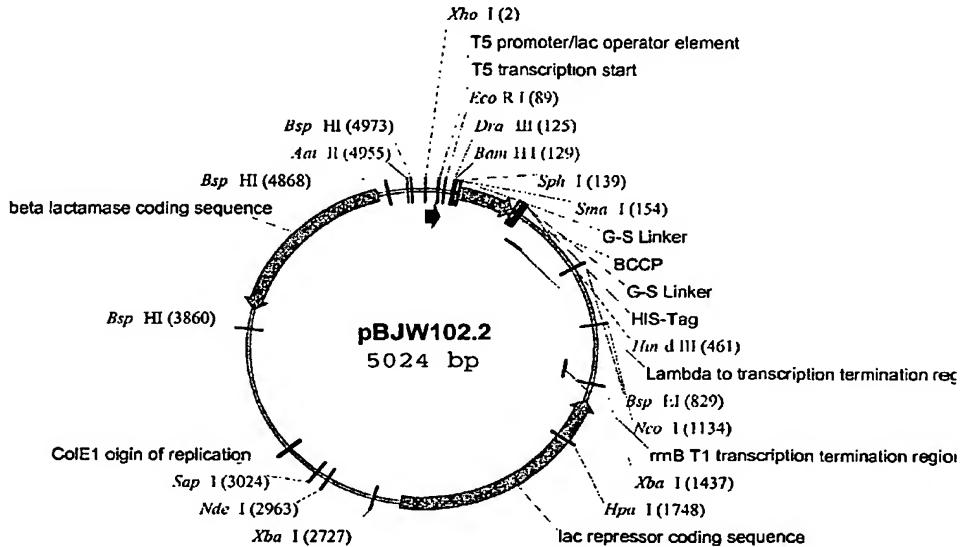
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- (71) Applicant (for all designated States except US): SENSE PROTEOMIC LIMITED [GB/GB]; The Babraham Bioincubator, Babraham Hall, Babraham, Cambridge CB2 4AT (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BOUTELL, Jonathan, Mark [GB/GB]; 38 Magnaville Road, Bishop's Stortford CM23 4DN (GB). GODBER, Benjamin, Leslie, James [GB/GB]; 13 Crow Hill Lane, Great Cambourne, Cambridge CB3 6AP (GB). HART, Darren, James [GB/GB]; Sense Proteomic Limited, Babraham Hall, Babraham, Cambridge CB2 4AT (GB). BOCKETT, Nicholas, A. [GB/GB]; Sense Proteomic Limited, The Babraham Bioincubator, Babraham Hall, Babraham, Cambridge CB2 4AT (GB). KOZLOWSKI, Roland [GB/GB]; Sense Proteomic Limited, The Babraham Bioincubator, Babraham Hall, Babraham, Cambridge CB2 4AT (GB).
- (74) Agent: MACLEAN, Martin, Robert; Mathys & Squire, 100 Gray's Inn Road, London WC1X 8AL (GB).
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(54) Title: PROTEIN ARRAYS AND USES THEREOF



WO 2004/025244 A3

(57) Abstract: The Inventors herein describe methods for the production of a functional human, animal, plant or microbe protein arrays and methods to assay for interactions between the proteins on the array with molecules of interest, for example, using such arrays to determine the in vitro metabolite profile of any drug. Such protein arrays can be used, for example, to assay, in a parallel fashion, the protein products of DNA sequences encoding drug metabolising enzymes (DMEs) to obtain a toxicology profile. Also described herein is a novel DME expression and purification strategy using detergents and not requiring an ultra-centrifugation step.



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A. CLASSIFICATION OF SUBJECT MATTER	IPC 7 G01N33/68 C12N9/02	C07K14/47	C12Q1/26	C07K1/04
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According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, EMBASE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/094544 A1 (FANG YE ET AL) 18 July 2002 (2002-07-18) the whole document -----	1-36
X	WO 01/57198 A (SENSE PROTEOMIC LTD ; SUTHERLAND JOHN DAVID (GB); BLACKBURN JONATHON M) 9 August 2001 (2001-08-09) page 8, line 15 - page 10, line 27 -----	1-35
E	EP 1 376 124 A (CORNING INC) 2 January 2004 (2004-01-02) claims -----	1, 9, 18, 23-25, 31

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl  
Fax: (+31-70) 340-3016

Authorized officer

Stricker, J-E

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ational Application No

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Patent document cited in search report	Publication date		Patent family member(s)		Publication date
US 2002094544	A1	18-07-2002	US 2002019015 A1 CA 2447251 A1 EP 1388010 A2 WO 02092833 A2 US 2003138853 A1		14-02-2002 21-11-2002 11-02-2004 21-11-2002 24-07-2003
WO 0157198	A	09-08-2001	AU 3037501 A CA 2369742 A1 EP 1203238 A2 WO 0157198 A2 GB 2361698 A ,B JP 2003521922 T US 2003118994 A1		14-08-2001 09-08-2001 08-05-2002 09-08-2001 31-10-2001 22-07-2003 26-06-2003
EP 1376124	A	02-01-2004	EP 1376124 A2 US 2004002064 A1		02-01-2004 01-01-2004